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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/005,049 | 12/04/2001 | Stuart T. Linsky | 22-0149 | 9203 |

26294 7590 03/14/2005

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| EXAMINER | |
|---|---|
| GHULAMALI, QUTBUDDIN | |
| ART UNIT | PAPER NUMBER |
| 2637 | |

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/005,049 | LINSKY ET AL. | |
| | Examiner | Art Unit | |
| | Qutub Ghulamali | 2637 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claim 1, claim 1 recites the limitation "said partially decoded data" in lines 10-11. There is insufficient antecedent basis for this limitation in the claim.

4. Regarding claim 18, claim 18 recites the limitation "the set of vector pairs of the burst" in lines 8. There is insufficient antecedent basis for this limitation in the claim.

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3 d 1046, 29 USPQ 2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F. 2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F. 2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F. 2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F. 2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130 (b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/005,063.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of the application are clearly encompassed by claims of the copending application.

Regarding claim 1 in the instant application, the complex samples are in a burst, whereas in the copending application claim 1, "complex samples". The communication as disclosed in the instant application is a data communication system known to impress intelligent information to be conveyed onto a carrier for transmission by one of many different modulation techniques as designed. Therefore, in the copending application the data communication system can by design choice, work equally well. Given the facts, it would have been obvious to one skilled in the art at the time the invention was made to present the claim in an alternate way so as to enhance the data communication system.

Similarly, in the instant application the phase detector receives complex data samples and current phase estimates and generates phase differences, whereas in the copending application the phase detector receives complex data samples and a plurality of different phase/frequency estimates. Since the phase detector in both instance can accept complex data and phase estimates, it would be obvious to one skilled in the art at the time the invention was made to present the claim in an alternate way so that different phase differences can be obtained.

Regarding claims 2-9, the claimed subject matter in the instant application mirrors (verbatim) that of the copending application claims 2-9.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/004,773.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of the application are clearly encompassed by claims of the copending application.

Regarding claim 1 in the instant application, it is shown that the inner block decoder generates decoded data. Whereas in the copending application the inner block decoder generate partial decode values. Since the decoder in the instant application can generate decoded data it can very easily generate partial decode data as programmed. Therefore, it would be obvious to one skilled in the art at the time the invention was made to present the claim in an alternate way so that upon program, the decoder could generate partial decoder values.

Regarding claims 2-9, the claimed subject matter in the instant application mirrors (verbatim) that of the copending application claims 2-9.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caso et al (US Patent No. 6,236,687) in view of Odenwalder (US Patent 6,396,804).

Regarding claim 10, Caso discloses a demodulator unit (fig. 1, element 22), demodulate an input signal in a communications system comprising:

a phase lock loop, each having a first block decoder configured to decode bursts of the input modulated signal at a decode rate to generate a set of associated code words and a phase/frequency error estimate (col. 3, lines 23-35; col. 4, lines 9-17). Caso, however, is silent regarding a phase locked loop selectively apply excess processing power to a burst of input modulated signals; and

a selection circuit which identifies a burst of said input modulated signal to be demodulated with excess processing power, said selection circuit providing said identified burst to said one of said phase locked loops which is adapted to selectively apply excess processing power in order to re-process said burst of said input modulated signal.

Odenwalder discloses a communications system wherein data is transmitted at higher maximum rates and with a greater variety of possible rates adapted to various radio channel conditions comprising a plurality of decoders selectively apply excess processing power to a burst of input modulated signals (col. 14, lines 35-47); and

a selection circuit which identifies a burst of said input modulated signal to be demodulated with excess processing power, said selection circuit providing said identified burst to said one of said phase locked loops which is adapted to selectively apply excess processing power in order to re-

process said burst of said input modulated signal (col. 17, lines 34-50). It would have been obvious to one skilled in the art at the time the invention was made to use higher data rate circuit with greater efficiency to allow interface over multiple types of communication as taught by Odenwalder in the system Caso because it can facilitate continuous transmission of data via transmit channels having differing power consumptions.

6. Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caso et al (US Patent No. 6,236,687) in view of Odenwalder (US Patent 6,396,804) as applied to claim 10 above, and further in view of Khayrallah et al (US Patent 5,983,385).

Regarding claim 11, Caso and Odenwalder in combination disclose substantially every feature of the claimed invention in claim 10. Caso and Odenwalder disclosure, however, is silent regarding first block decoder generate reliability metric results. Khayrallah in a similar field of endeavor discloses a communications system and method wherein a selective recursive decoding process based on reliability metric produced by the decoding means (556a and 556b) (col. 6, lines 38-55; col. 8, lines 10-21). Therefore it would have been obvious to one skilled in the art at the time the invention was made to use a block decoder to generate reliability metric results as taught by Khayrallah in the circuit of Caso and Odenwalder because it can provide enhanced capabilities with less complex encoder and decoder designs.

Regarding claim 12, Caso and Odenwalder in combination disclose substantially every feature of the claimed invention in claim 10. Caso and Odenwalder disclosure, however, is silent regarding reliability metric results comprise correlation results taken during decoding by said first block decoders. Khayrallah in a similar field of endeavor discloses reliability metric results comprise correlation results taken during decoding by said first block decoders (col. 7, lines 20-

42). Therefore it would have been obvious to one skilled in the art at the time the invention was made to use a reliability metric results with the coding process as taught by Khayrallah in the circuit of Caso and Odenwalder because it can provide correlation and error correction during decoding.

Regarding claims 13 and 15, Caso and Odenwalder in combination discloses substantially every feature of the claimed invention in claim 10. Caso and Odenwalder disclosure, however, is silent regarding a second decoder selects codewords from said set of associated codewords based on the reliability metric results from said first block decoders. Khayrallah in a similar field of endeavor discloses a second decoder selects codewords from said set of associated codewords based on the reliability metric results from said first block decoders (col. 7, lines 20-42).
It would have been obvious to one skilled in the art at the time the invention was made to use a codewords from first decoder by the second decoder based on reliability results from the first decoder as taught by Khayrallah in the circuit of Caso and Odenwalder so as to provide improved burst error correcting capability.

Regarding claims 14 and 17, Caso and Odenwalder in combination discloses substantially every feature of the claimed invention in claim 10. Caso and Odenwalder disclosure, however, is silent regarding a selection circuit. Kayrallah in a similar field of endeavor discloses codeword selection circuit identifies burst based on the reliability metric results from first block decoder (col. 7, lines 56-67; col. 8, lines 10-20). ). It would have been obvious to one skilled in the art at the time the invention was made to use a selection circuit identify burst in the decoding process as taught by Khayrallah in the circuit of Caso and Odenwalder because it can improve the iterative decoding process mitigate errors.

Regarding claims 16, Caso and Odenwalder in combination discloses substantially every feature of the claimed invention in claim 10. Caso and Odenwalder disclosure, however, is silent regarding a second outer block decoder preselects the codewords from among said set of associated codewords. Kayrallah in a similar field of endeavor, discloses second outer block decoder preselects the codewords from among said set of associated codewords (col. 8, lines 10-20). It would have been obvious to one skilled in the art at the time the invention was made to use a second outer block decoder preselect the codewords from among said set of associated codewords as taught by Khayrallah in the circuit of Caso and Odenwalder because it can improve the iterative decoding process by minimizing errors.

### *Allowable Subject Matter*

7. Claim 18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

O'shea et al (US Pub. 2003/0156672) discloses frame synchronization and detection.

Smith et al (US 2004/0105516) shows a digital data receiver synchronization having a plurality of phase lock loops.

Edison et al (US 2004/0042566) discloses symbol reliability determination comprising of received symbols.

Dent (US Patent 5,151,919) shows CDMA demodulation and modulation system optimally decode coded information.

Branlund et al (US 2003/0086366) discloses adaptive communications methods and network of codewords.

Hassan et al (US Patent 5,968,198) discloses decoder utilizing soft information output to minimize error rate.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG.
March 4, 2005.

JAY K. PATEL
SUPERVISORY PATENT EXAMINER